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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/051,321	01/18/2002	Santosh C. Lolayekar	E003 - 1000US1	7045

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EXAMINER
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REFAI, RAMSEY

ART UNIT	PAPER NUMBER
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2152

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	12/20/2006	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/051,321	<b>Applicant(s)</b> LOLAYEKAR ET AL.	
	<b>Examiner</b> Ramsey Refai	<b>Art Unit</b> 2152	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 19 October 2006.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-6 and 8-44 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 and 8-44 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

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## DETAILED ACTION

### *Response to Amendment*

Responsive to Amendment received October 19, 2006. Claims 1, 15, 20, 21, 24 have been amended. Claims 1-6 and 8-44 remain pending further examination.

### *Response to Arguments*

1. Applicant's arguments have been fully considered but they are not persuasive.

- In the remarks, the Applicant argues in substance:

Argument A: *Latif does not disclose processing packets without buffering or at wire speed.*

In response, the Examiner asserts that the Tzeng reference was used to disclose the deficiencies of Latif. Tzeng discloses a network switch that processes incoming data packets without buffering or at the same rate that the data packets are received (See column 1, line 39-column 2, lines 16). Therefore the combination of Latif and Tzeng meet the scope of the claimed limitation.

Argument B: *Tzeng does not disclose or suggest processing packets without buffering.*

In response, the Examiner respectfully disagrees. Tzeng et al clearly disclose processing packets at a switch without buffering or at the same rate that the data packets are received at the switch (See column 1, line 39-column 2, lines 16). Furthermore, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Therefore, the combination of Latif and Tzeng meet the scope of the claimed limitation.

Argument C: *Neither Tzeng nor Latif disclose or suggest classification, virtualization and translation of packets.*

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In response, the Examiner respectfully disagrees. Latif discloses that the switch performs translation of data packets between SCSI, Fibre Channel and Ethernet devices. (column 1, lines 18-25, column 3, lines 5-21, column 6, lines 44-57). Latif further discloses that the switch performs address translation (virtualization) (see column 11, lines 5-30, column 16, lines 30-42, column 7, lines 26-46). Tzeng et al discloses a packet classifier (see column 3, lines 35-45). Therefore the combination of Latif and Tzeng meet the scope of the claimed limitation.

*Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-6, 8-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Latif et al (U.S. Patent No. 6,400,730) in view of Tzeng (U.S. Patent No. 6,693,906).

4. As per claim 1, Latif et al disclose a switch for use in a network, comprising:

a plurality of linecards, each including: a plurality of ports; and a plurality of storage protocol processing units, wherein each storage protocol processing unit is associated with at least one port and performs storage command processing for commands received at said at least one port, thereby distributing processing resources amongst linecard ports (column 2, line 55-column 3, line 21, column 7, lines 46-column 8, line 15)

Latif et al disclose the processing of storage commands (column 1, lines 25-30, column 6, lines 9-10, column 19, lines 30-37, ) but fail to explicitly disclose that the switch processes packets without buffering the packets. However, Tzeng discloses a network switch that processes incoming data packets without buffering (column 1, line 39-column 2, lines 16). It

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would have been obvious to one of the ordinary skill in the art at the time of the Applicant' s invention to combine the teachings of Latif et al and Tzeng because doing so would reduce the overall cost of the network switch and enhance switching performance.

5. As per claim 2, Latif et al disclose wherein additional linecards can be added to the plurality of linecards (Fig. 5, column 7, lines 25-67).

6. As per claim 3, Latif et al disclose wherein linecards can be removed from the plurality of linecards (Fig 5).

7. As per claim 4, Latif et al disclose wherein each linecard is designed to handle packets formatted in accordance with any respective one of a plurality of protocols (column 2, lines 15-67).

8. As per claim 5, Latif et al disclose wherein: a first set of linecards in the plurality is designed to send and receive packets in accordance with an iSCSI protocol; and a second set of linecards in the plurality is designed to send and receive packets in accordance with a Fibre Channel protocol (column 2, lines 15-67).

9. As per claim 6, Latif et al disclose wherein one of the plurality of protocols is Infiniband (column 4, line 16).

10. As per claim 8, Latif et al fail to explicitly disclose wherein the switch is capable of processing packets at wire speed. However, Tzeng discloses a network switch that processes incoming data packets without buffering to ensure that switches have switching capabilities for faster speed networks such as 100Mbps or gigabit networks (column 1, line 39-column 2, lines 16). It would have been obvious to one of the ordinary skill in the art at the time of the Applicant' s invention to combine the teachings of Latif et al and Tzeng because doing so reduce the overall cost of the network switch and enhance switching performance.

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11. As per claim 9, Latif et al disclose wherein the switch is capable of receiving a packet at a first port of a first linecard destined for a virtual target and formatted in accordance with a first protocol (column 2, lines 34-column 3, line 22), determining if the packet is a data or control packet (column 7, lines 49-59), and if the packet is a data packet, sending the packet formatted in accordance with a second protocol to a physical target (column 2, lines 34-column 3, line 22). Latif et al fail to explicitly disclose it' s all without buffering the packets. However, Tzeng discloses a network switch that processes incoming data packets without buffering (column 1, line 39-column 2, lines 16). It would have been obvious to one of the ordinary skill in the art at the time of the Applicant' s invention to combine the teachings of Latif et al and Tzeng because doing so would reduce the overall cost of the network switch and enhance switching performance.

12. As per claim 10, Latif et al disclose wherein the switch is capable of receiving a packet at a first port of a first linecard destined for a virtual target and formatted in accordance with a first protocol, determining if the packet is a data or control packet, and if the packet is a data packet, sending the packet formatted in accordance with a second protocol to a physical target (column 2, lines 34-column 3, line 22). Latif et al fail to explicitly disclose wherein the switch is capable of processing packets at wire speed. However, Tzeng discloses a network switch that processes incoming data packets without buffering to ensure that switches have switching capabilities for faster speed networks such as 100Mbps or gigabit networks (column 1, line 39-column 2, lines 16). It would have been obvious to one of the ordinary skill in the art at the time of the Applicant' s invention to combine the teachings of Latif et al and Tzeng because doing so reduce the overall cost of the network switch and enhance switching performance.

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13. As per claim 11, Latif et al disclose wherein the switch is capable of performing a storage service at the request of a second device without any additional involvement of the second device (column 1, lines 18-35).
14. As per claim 12, Latif et al disclose wherein the second device is a server (column 1, lines 18-35).
15. As per claim 13, Latif et al disclose wherein the second device is a management station (column 1, lines 18-35).
16. As per claim 14, Latif et al disclose wherein the storage service is any one of local mirroring, mirroring over slow link, snapshot, replication, third-party copy, periodic backup, and restore (column 1, lines 25-40).
17. As per claim 15, Latif et al disclose a switch for use in a network, comprising: a plurality of linecards, each linecard including: a plurality of ports; a plurality of processing units, wherein each processing unit is associated with at least one port and is associated, with a memory; a CPU in communication with the processing units; and a fabric in communication with each linecard, thereby allowing packets to pass from an ingress linecard to an egress linecard (Fig. 15, column 2, line 55-column 3, line 21, column 7, lines 46-column 8, line 15).

Latif et al disclose the processing of storage commands (column 1, lines 25-30, column 6, lines 9-10, column 19, lines 30-37, ) but fail to explicitly disclose that the switch processes packets without buffering the packets. However, Tzeng discloses a network switch that processes incoming data packets without buffering (column 1, line 39-column 2, lines 16). It would have been obvious to one of the ordinary skill in the art at the time of the Applicant's invention to combine the teachings of Latif et al and Tzeng because doing so would reduce the overall cost of the network switch and enhance switching performance.

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18. As per claim 16, Latif et al disclose wherein: each processing unit includes a packet aggregation and classification unit and a packet-processing unit; and the associated memory includes a CAM and an SRAM (column 7, line 45-column 8, line 15, Figs. 8, 16-17).
19. As per claim 17, Latif et al disclose wherein the associated memory is included in the processing unit (Figs. 8, 16-17).
20. As per claim 18, Latif et al disclose wherein the associated memory is associated with each processing unit (Figs. 8, 16-17).
21. As per claim 19, Latif et al disclose wherein the switch further includes a traffic manager in communication with each processing unit (column 7, line 45-column 8, line 15).
22. As per claim 27-28, Latif discloses virtualization (see column 11, lines 5-30, column 16, lines 30-42, column 7, lines 26-46; address translation).
23. As per claims 20-26 and 29-44, these claims contain similar limitations as claims 1-6, 8-19 and 27-28 above, therefore are rejected under the same rationale.

#### *Conclusion*

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.



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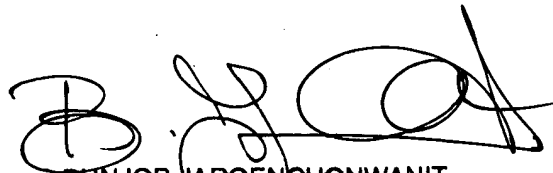
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ramsey Refai whose telephone number is (571) 272-3975. The examiner can normally be reached on M-F 8:30 - 5:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bunjob Jaroenchonwanit can be reached on (571) 272-3913. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Ramsey Refai  
Examiner  
Art Unit 2152  
December 14, 2006

*MR*

  
BUNJOB JAROENCHONWANIT  
SUPERVISORY PATENT EXAMINER